

Title (en)

Dynamic change detecting method, dynamic change detecting apparatus and ultrasonic diagnostic apparatus

Title (de)

Verfahren und Vorrichtung zum Erfassen einer dynamischen Veränderung sowie Ultraschall-Diagnosegerät

Title (fr)

Méthode et appareil pour la détection de changements dynamiques et appareil ultrasonique pour diagnostics

Publication

EP 1158283 B1 20030730 (EN)

Application

EP 01112381 A 20010521

Priority

JP 2000151135 A 20000523

Abstract (en)

[origin: EP1158283A1] A dynamic change detecting apparatus allows canceling the influence of environmental change or an individual difference between a plurality of laser elements so as to perform a stable detection. This apparatus has a laser 7, including a laser resonator 21 to 25, for emitting a laser beam while causing frequency modulation in accordance with dimensional change of the laser resonator; a partial reflection mirror 33 for splitting the laser beam emitted by the laser 7 into a plurality of split-beams and guiding the plurality of split-beams to a plurality of optical paths having mutually different optical path lengths respectively; a frequency shifter 35 for causing frequency shift in at least one of the plurality of split-beams; a lens 39 for combining the plurality of split-beams with each other to obtain interference light; an photodetector 11 for detecting the interference light to obtain an intensity signal; a demodulation unit 43 for demodulating the intensity signal to generate a demodulated signal; and an integration processing unit 45 for obtaining a signal corresponding to the dynamic change on the basis of the demodulated signal. <IMAGE>

IPC 1-7

G01H 9/00

IPC 8 full level

G01P 15/03 (2006.01); **A61B 8/00** (2006.01); **G01B 11/00** (2006.01); **G01B 17/00** (2006.01); **G01B 17/06** (2006.01); **G01H 9/00** (2006.01); **G01N 29/00** (2006.01); **G01N 29/24** (2006.01)

CPC (source: EP KR US)

G01H 9/00 (2013.01 - EP US); **G01H 9/002** (2013.01 - EP KR US); **G01H 9/004** (2013.01 - EP KR US); **G01N 2291/044** (2013.01 - EP KR US)

Citation (examination)

JP H09114100 A 19970502 - SONY CORP

Cited by

US10054676B2; DE102006033229A1; DE102006033229B4; US2021181081A1; US11662292B2; WO2008009442A3; US8240211B2

Designated contracting state (EPC)

DE IT NL

DOCDB simple family (publication)

EP 1158283 A1 20011128; **EP 1158283 B1 20030730**; CN 1261759 C 20060628; CN 1325027 A 20011205; DE 60100526 D1 20030904; DE 60100526 T2 20040408; JP 2001330509 A 20011130; JP 3903105 B2 20070411; KR 100774939 B1 20071108; KR 20010107583 A 20011207; US 2002009103 A1 20020124; US 6594290 B2 20030715

DOCDB simple family (application)

EP 01112381 A 20010521; CN 01115919 A 20010522; DE 60100526 T 20010521; JP 2000151135 A 20000523; KR 20010027003 A 20010517; US 85946001 A 20010518